UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Field Survey of Intensity for the Earthquake of July 27, 1980, Sharpsburg, Kentucky

By

Margaret G. Hopper

and

B. Glen Reagor

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This report is preliminary and has not been reviewed for conformity with U. S. Geological Survey editorial standards. Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

INTRODUCTION

The magnitude 5.2 (mb) northern Kentucky earthquake of July 27, 1980, at 18:52:21.8 UTC, located at 38.17N, 83.91W with a depth of 8 km (as determined by the National Earthquake Information Service), was particularly notable for the widespread damage it did, especially to older chimneys. Investigators from several different organizations were in the field shortly after the earthquake recording aftershocks and checking intensities. The data from postal intensity surveys and field personnel are still coming in, and it will be some time before it is all evaluated and analyzed. This preliminary list of the results of our own field investigations is being produced now in order that the information we gathered may be combined with that of other researchers for analysis.

Our investigation, conducted from July 28 to August 3, was designed to delineate the areal distribution of the intensities and to document the amount and type of damage in the epicentral region. Tentative intensities have been assigned to these reports and they have been plotted in figure 1. However, as more information becomes available from other investigators, some of these values may be changed and other locations may be added. Therefore no attempt has been made to contour the data. A maximum Modified Mercalli intensity of VII was assigned to

Maysville, Ky., approximately 50 km north of the epicenter, based on the concentrated chimney and other types of building damage there. Elsewhere, similar but scattered chimney damage has been assigned intensity VI.

The reports in this list are organized in alphabetical order by town name, first for Kentucky and then for Ohio. At the end are appended a few felt reports for the aftershock of Thursday morning, July 31.

KY AUGUSTA

At a barber shop in a fairly old, two-story, brick building on a concrete-block foundation, nothing fell off the shelves.

People said they thought one house by the railroad depot had a few bricks knocked off its chimney.

An insurance agent knew one person who had some hairline cracks in a concrete-block basement wall.

KY BARTERVILLE

On the road north from U.S. Hwy. 68 to Barterville we observed one chimney missing a couple of courses of bricks on three sides, possibly from the earthquake.

In the two-story, wood-frame grocery store at Barterville, nothing fell off the shelves, but one of the two screws on which a clock was hanging on the back wall was dislodged.

In this area several people were reported to have had glassware broken.

Two chimneys, thought to be in fairly good condition, lost a few bricks off the top. Another chimney, previously damaged by lightening, lost a few loose bricks off the top.

KY BEECHBURG

At the old, dilapidated, one-story, wood-frame Beech store nothing was knocked off the shelves and nothing fell.

Next door, at an old, dilapidated, two-story, wood-frame house, windows rattled, but nothing fell. The woman we talked to at the house had heard of no damage in the area.

KY BETHEL

In the town, fewer of the chimneys were damaged than on the road, Ky. Hwy. 11, south of town.

In the cemetery just north of Bethel, numerous

tombstones were rotated, more of them counterclockwise than clockwise. Some of them were displaced to the southwest. The direction of displacement was apparently related to the slope of the ground beneath the stones.

At the general store in Bethel, an old store that was in business at least 75 years ago, little fell off the shelves. The store had wooden floors and ceiling and the shelves were attached to the walls. In the owner's home, next door to the east, all the closet doors came open, things vibrated off the window sills, and a few pictures were left askew. The house shook "the way a dog shakes a rabbit," he said, and he thought his furnace had exploded.

KY BLACKS CROSSROADS

At Blacks Crossroads, at a modern, two-story, wood-frame house, the owner said that a clock hanging on a wall was turned a little askew and one object fell off a shelf. She was not home at the time of the earthquake.

KY BUENA VISTA

At the one-story, metal-walled grocery store in Buena Vista, nothing fell from the shelves.

We were told of a man about 2 km east of Buena Vista who was almost bounced off his couch and had some cracks in his well-built chimney.

We were told of another well-built chimney about 3 km south of Buena Vista that had some damage.

KY CAMARGO

At the Shell Station, a one-story, brick building, the earthquake shook and rattled the windows but nothing fell off the walls.

A man pointed out a house down the street which he had heard had lost a few bricks off the chimney.

KY CARLISLE

Just north of Carlisle on Ky. Hwy. 32 we observed a couple of chimneys that appeared to have one or two bricks missing.

In Carlisle there were reports of a number of old brick chimneys all over town that had lost several bricks each.

One person, who was driving by the courthouse at the time of the earthquake, neither felt nor heard the shock and had no trouble steering.

A woman said her TV on casters rolled across the room, but nothing fell and no pictures were moved in her home.

Two blocks north of the courthouse a heavy mirror hanging on a wall was moved.

A pair of twin water towers southwest of town were said to have been swaying strongly during the earthquake.

At a lake just north of town the water bubbled.

At the two-story, brick court house, nothing was moved at all. Just across the street from the court house, at a

drugstore in an older, three-story, brick building in a row of similar buildings, a lot of things were knocked to the floor, we were told.

A wall was reported cracked in a grocery store at the intersection of Ky. Huys. 36 and 32, a few blocks east of the court house.

A woman at the court house said she was at home sound asleep at the time of the earthquake, and it woke her.

KY CHARTERS

At the partly two- and partly one-story, concrete-block grocery store, all the cans that were stacked two deep fell off. When the owner came into the store part of the building during the earthquake, she said the cans were jumping off the shelves. She returned to the lower, one-story part of the house and tried to hold down the top of her hutch, which was bouncing around. None of her dishes in the hutch were broken. There were hairline cracks going up through the concrete blocks from either side of a second-floor window on the front of the building. The building had been repainted and plastered on the outside last year, so these cracks were new.

KY CLINTONVILLE

In Clintonville, northwest of Winchester, at a two-story, flimsily-built (according to the storekeeper), wood-frame building, the motion was predominately up and down. Several things fell off the shelves. The people sitting on the benches out front got up and ran.

The storekeeper knew of one cracked concrete-block cistern in this area, but he didn't think there was any chimney damage here.

KY COLVILLE

At Colville, on Ky. Huys. 32 and 36 just east of Cynthiana, nothing was disturbed in the two-story, wood-frame store and Texaco station. The storekeeper had not heard of any pictures askew or anything falling off shelves. She was not here at the time of the earthquake.

One person who was here at the time of the earthquake said it shook strongly.

Some people living in a trailer home were frightened enough to run outside, but nothing was disturbed inside the trailer.

KY CONCORD

At Concord on the Ohio River, the church had one window cracked diagonally across several panes. There were a couple of bricks knocked off the chimney.

At the house next door nothing fell, no pictures were askew, and the cistern did not crack.

We were told that at the house behind the church, however, a few things did fall.

KY COTTAGEVILLE

About 2 km west of Cottageville the road between Plumville and Cottageville ended at the Mason-Lewis county line at a covered bridge which was closed to traffic. Two blocks west of the bridge we talked to a man at a two-story, wood-frame house on a concrete-block foundation. The windows rattled at the time of the earthquake. Nothing fell off. He knew of no damage to chimneys or anything else in the immediate area.

Near the church just southeast of Cottageville, we observed a chimney missing about half of its top course of bricks.

KY COWAN

At the one-story, wood-frame grocery store and Standard service station in Cowan some things came off the shelves.

Nearby, several people reported a few things falling off shelves and walls. They also said a couple of chimneys were damaged and one had already been pulled over to keep people from getting hurt.

We observed a number of old chimneys in Cowan, but only one that seemed to be missing a few bricks, apparently not the one described by the people at the store.

KY CYNTHIANA

At Cynthiana the fire chief said that a few groceries were reported to have fallen in one of the stores, but he thought the cans were probably precariously stacked.

One of the firemen said that he was asleep and the earthquake woke him. The crystal in his chandelier was bouncing up and down.

KY DALESBURG

On Ky. Hwy. 57 from Flemingsburg north to Dalesburg we observed a number of chimneys with no apparent damage.

In Dalesburg we saw one chimney with a few bricks missing which might have been due to the earthquake.

KY DOVER

At Dover, on the Ohio River west of Maysville, at a 146-year-old brick house, there was a small crack in the chimney, going through the bricks as well as the mortar. Inside the house nothing fell off shelves and no pictures were askew.

Across the street at another old brick building, the two-story Standard service station and grocery store, there was no damage, but some paint cans fell off a shelf.

On a short drive through town we observed one chimney that apparently had been damaged by the earthquake. Another house had an apparently undamaged white chimney and 3 or 4 red bricks lying on the roof. The loose bricks may have been used to hold a piece of chicken wire on top of the chimney to keep birds from nesting in it, a common practice

in this area. The bricks did appear to have fallen from the chimney.

In Dover, at the two-story brick home, built in 1790, belonging to a man we talked to in Washington, Ky., some old cracks were opened, but none of the places recently replastered reopened. Things fell off shelves and pictures came off the walls, but the chimneys were not damaged.

KY EAST UNION

A modern, one-story, wood-frame grocery store on a concrete-block foundation, swayed and a few things were knocked off the shelves and off the top of the air conditioner.

A short way down the road a house was pointed out where a few unattached bricks had rolled off the top of a chimney.

There was an old chimney on the church next door to the store that appeared to have lost a brick, but the storekeeper didn't know if it happened during the earthquake.

In the storekeeper's modern house next door, pictures swung but the chimneys were not damaged at all.

KY ELIZAVILLE

Near Elizaville, a nurse had some candlesticks and small things knocked over. Her crystal chandelier was still swinging when she returned home after the earthquake. One of her neighbors had a chimney half fallen down.

KY EWING

Driving through Ewing we observed one chimney with the top four or five courses of bricks missing on one side.

KY FAIRVIEW

At Fairview at the junction of U.S. Hwy. 68 and Ky. Hwy. 165, the one-story, concrete-block grocery store had a few things knocked off the shelves and developed a few cracks a couple of blocks long through the mortar seams in the wall.

At the owner's trailer home behind the grocery a few things fell off, but no pictures were crooked.

We were told that five chimneys were down along the Mount Tabor Road, a road that runs southwest from Ky. Hwy. 165 between Fairview and Ewing, just east of Blue Lick State Park. Two of the chimneys were reported to have good brick and mortar. Several concrete-block cisterns were also said to have been cracked along this road, and one was losing considerable water.

At the Luther Campbell place on the Mount Tabor Road, a one-story, wood-frame building, the whole top of the chimney was gone, down to the roof line. The people we talked to in Fairview thought it had been well-mortared.

A two-story, wood-frame house on the Mount Tabor Road had a chimney cracked vertically almost from top to bottom.

It had fairly competent mortar. It had been patched and some of the cracks went through the old patches. The earthquake rattled dishes inside the house, but nothing fell off, they said.

Farther south along Mount Tabor Road we observed two or three other chimneys that seemed to be missing one or two bricks at most.

One person we talked to on Mount Tabor Road said that her relative's concrete-block basement was badly cracked.

KY FARMER

At Farmer at the intersection of Ky. Hwy. 801 and U.S. Hwy. 60, at a one-story, concrete-block restaurant, the windows did not rattle and nothing fell off the shelves.

At a one-story, concrete-block Chevron service station on the south side of town, the windows did rattle, but nothing fell off. They had heard of no damage anywhere in town.

KY FEARISVILLE

At a one-story, wood-frame house nothing fell off. People sitting out in the yard were bounced off the ground. The earthquake came as a rolling motion from the northwest.

KY FERNLEAF

At the one- and two-story, concrete-block grocery, 2-3 mi east of Fernleaf on Ky. Hwy. 10, nothing fell off the shelves.

Several things fell at a wood-frame house.

In an all-brick house nothing fell, but things did fall at the trailer home next door.

KY FLEMINGSBURG

At the two-story, brick Fleming County Court House, built in 1939, a wooden cornice fell from the top of a window outside.

The Fleming County sheriff told us that there were approximately one hundred buildings damaged in the whole of Fleming County. Some had chimneys that lost a few bricks, some had chimneys built wider at the base that broke off all the way to the base, and a couple had cracked basements with damage to the basement plaster.

At the Fleming County Hospital, a modern, one-story, brick and concrete-block building, one window was broken and there were some cracks in the plaster. A nurse said she thought an oxygen tank had exploded. She was not frightened until after the earthquake, but during the shock she found it slightly difficult to walk. Nothing fell off desks or shelves in the hospital.

KY FOXPORT

East of Foxport we saw one house with some bricks off the top of the chimney and the front porch roped off.

At the part concrete-block and part wood-frame, two-story Foxport General Store about a dozen things were knocked off the shelves, mostly small items like boxes of Jello.

The store owner told us that neighbors had some things knocked off shelves and pictures off walls. One person had a lot of things knocked off a shelf attached to a wall over his bed.

KY FRENCHBURG

At Profitt's Sportshop, a wood and metal building, a few things fell off the shelves and everybody ran outside. The only damage they had heard of in this entire area was a concrete porch pulling away about 8 cm from a foundation. They didn't think there was any other damage here.

KY GERMANTOWN

About 6 km south of Germantown on Ky. Hwy. 596, a man in a two-story, wood-frame house said he had some cracks in his older chimney, but he was not certain they were new. His newer, concrete-block store next door had no damage at all. The earthquake appeared to come from the southwest and all the windows and doors rattled. A large cast-iron bell hanging out in the yard did not ring.

In Germantown, immediately west of the Mason County line at June's Country Market, a one-story, concrete-block building with brick veneer, nothing fell off the well-stocked shelves. Two people we talked to had heard that someone in town had a basement cracked. They knew of no chimney damage in the area, and neither they nor anyone else had anything to fall off shelves or walls in their homes.

At the Hazel White grocery store in Germantown, an old, two-story, wood-frame structure, none of the many grocery items fell. The storekeeper said nothing fell in her home, and she had heard of no damaged chimneys in the area.

A person we talked to in Fernleaf said that quite a few things fell off in his mother's wood-frame house in Germantown.

KY GRANGE CITY

At the two-story, wood-frame grocery nothing fell off the shelves. One or two of the grocer's neighbors had things that fell off or a picture that was knocked off the wall. He thought the earthquake was an explosion at the gas plant at the town of Wyoming just over the next hill.

We observed two chimneys that appeared to be damaged, but the man at the store did not think they were damaged by the earthquake.

KY HEADQUARTERS

A man we talked to at Colville said that he was in his yard in the town of Headquarters (northwest of Carlisle).

He heard a loud roar coming and passing through. His roto-tiller was jumping up and down. All the canned goods in his basement were thrown down. There was a hairline crack in his house through both bricks and mortar from the bottom corner of one of his windows to the ground.

KY HELENA

In Helena, on Ky. Hwy. 324, we observed a one-story, wood-frame house with a big old chimney missing most of its mortar and leaning out from the house. It did not appear to have been damaged by the earthquake.

A man we talked to there said there was no damage here to chimneys or anything else, except for a few things knocked off shelves. It sounded like a jet to him and made the lawn chair he was sitting in start to walk across the lawn.

KY HERRON HILL

Passing through Herron Hill we saw one chimney out of perhaps a dozen which had a few dislodged bricks on the top. We don't know if this was earthquake related.

KY HILLSBORO

At the one-story, wood-frame grocery store and Standard service station a number of things came off the wooden shelves lining the walls.

At the clerk's home a table in the basement started bouncing up and down, but none of her upstairs furniture was displaced at all. Her pictures were knocked askew but did not fall off the wall.

There were no reports of chimney damage in the area.

KY JACKSTOWN

Just east of Jackstown we talked to a farmer who said that the windows were shaken but that nothing fell off the shelves, and no pictures were left crooked. He said there was no damage in the neighborhood.

Just west of the farmer we observed a chimney that was missing its first 5 or 6 rows of bricks on one side.

KY JEFFERSONVILLE

At the one-story, concrete-block store with brick-veneer front, there was a crack in the south-facing wall and several hairline cracks along the mortar seams below the windows and over the doors. Inside, nothing fell off the shelves.

We observed no obvious chimney damage.

KY JUDY

At the store across from the Ashland service station a man told us that several concrete-block cisterns in the area had been cracked. The house next door had chimney damage, and the house across the street had three chimneys damaged.

The latter is a brick house, approximately a century old, not very well maintained. There were diagonal shear cracks about a meter long in the brick wall between the first and second floor windows. The chimney that was the most severely damaged was cracked all the way down to the base, inside the house. During the earthquake, the residents said, soot and things from inside the chimney were falling into the fireplace. The middle part of the unsupported concrete-slab front porch collapsed. Nothing was damaged or broken inside.

Observing from the highway, Judy appears to have about 40% damaged chimneys out of a total of about two dozen.

KY KENTONTOWN

At the one-story, wood-frame grocery in Kentontown, nothing fell. We talked to three people. One said a few things fell in his bathroom and the other two had nothing that fell. One said it looked like the walls were going to fall during the earthquake.

KY LAIR

At the cinder-block store at Lair nothing fell off the shelves. Windows rattled in Lair.

KY LEWISBURG

In Lewisburg, south of Maysville on Ky. Hwy. 11, at the C. F. Lee General Store, a very old, two-story, brick building, about a dozen things fell off the shelves in the grocery store. Upstairs some antiques were broken when they fell off a shelf.

At the storekeeper's home on the top of a hill near here all the cabinet doors came open, the candlesticks fell off the mantel and some knick-knacks walked off the shelves.

Neither he nor a customer had heard of any cracked basements or damaged chimneys in the area, but both felt sure there was probably some chimney damage.

KY LEXINGTON

At the north Howard Johnson's Motel, Circle Rd. (Ky. Hwy. 4) and N. Broadway, windows rattled in the lobby and the building shook. Dishes fell off the table in the restaurant.

The desk clerk said that old cracks were widened and the ceiling was cracked in the new part of her two-level, wood-frame, brick-veneer home.

Another desk clerk said that nothing fell off shelves or walls in her trailer home.

KY LITTLE ROCK

At the one-story, concrete-block Davis grocery store and garage in Little Rock several things fell off the shelves, and more things just turned over on the shelves. There was no damage to the building or to a well-mortared

chimney next door.

The storekeeper said that there were a few chimneys cracked or with bricks knocked off in town.

She also described cracks in the ground, which she said were "not dry-weather cracks" because of the low rainfall lately, on the side of a hill. She said they were wide enough to stick a hand into.

Just down the street, at another grocery, the storekeeper said that at her home on the top of a hill on Stoner Road there were cracks in the ground running toward her cistern. In her home there was no damage and nothing fell off.

KY MAYS LICK

Just west of Mays Lick on Ky. Hwy. 324, we observed an old, two-story, brick house with a large chimney that had lost a number of bricks about half a meter below the top. The top was still standing and did not seem to be missing any bricks.

At the intersection of Ky. Hwy. 324 and Road 2517 at Welsh's grocery and general store in Mays Lick, almost all the groceries came off the shelves. It is an old, two-story, wood-frame building.

Next door at the Presbyterian Church, built in 1877, there was no visible damage and the storekeeper had heard of no damage to it.

Also nearby was a very old house with a large section of the brick wall fallen out. We were informed this happened long before the earthquake.

At the storekeeper's home, a one-story, wood-frame house a block down the street, a couple of bricks came off the top row of the chimney and more bricks fell down inside the chimney. Her pictures were askew and a few fell off the wall. Things fell down and were broken. Some furniture moved.

In a mobile home about 1 km away there was no damage except that a few things were knocked down.

The storekeeper estimated 15% chimney damage in the town. We estimated closer to 30%. Most of the damage was to very old chimneys.

In a new subdivision just south of town, there did not appear to be any damage.

Three kilometers from Shannon near Mays Lick, at the 1974 brick home of the people we talked to in Shannon, nothing was damaged.

KY MAYSVILLE

We visited the city of Maysville on the Friday after the earthquake on Sunday. Although repair work was continuing at a rapid pace, and had apparently been going on all week, there was still a lot of damage, particularly chimney damage, to be seen. Window glass damage, reported in the newspapers, had already been repaired.

In the business district, on McDonald Parkway, U. 2nd, 3rd, and 4th Streets between Sutton St. and Limestone St., we noted 38 instances of probable earthquake damage. Most of these consisted of bricks dislodged from chimneys or parapets on 1800's brick buildings. These were mostly very old two-story commercial buildings, churches, and townhouses.

On 5th and 6th Streets, mid-way up the bluffs which overlook the Ohio River, we saw only 9 damaged chimneys. However, the streets were narrow with the houses, all on the uphill or south side, practically on top of the street and it was frequently impossible to see the roofs from the street. These were primarily smaller, wood-frame (especially on 6th) post-1900 homes.

Along Edgemont Road, on top of the bluffs where the large, elegant homes are, we noted no damage whatsoever.

On the east side of town, where there are streets full of nice old homes, we noted some 42 instances of damage, almost all of them damaged chimneys.

KY MEANS

The new owners of the one-story, concrete-block grocery and general store, had put few groceries on the shelves at the time of the earthquake. What was there did not fall or move. They knew of no damage in the area.

KY MILLERSBURG

In the old, two-story, brick Post Office the post mistress said that nothing fell.

In the home of the post mistress dishes rattled, but none turned over or fell and none of her pictures were askew.

The post mistress said that there were no broken windows in the business district, but there was one chimney nearby with bricks knocked off.

At a house with the broken chimney at the corner of Main and 2nd, the owner showed us a truck full of bricks that he had pulled off the top of his chimney. He said that more bricks fell down inside the chimney. Apparently about a meter of the chimney was lost. Some of the bricks fell out in the street, and some fell on his patio breaking flower pots and damaging a lounge chair. However, inside his two-story, wood-frame house where he had a lot of knick-knacks, none fell off or broke, although a few turned over. He said that his chimney was well-mortared. He mentioned that another chimney was damaged towards Hookstown.

Driving through Millersburg, we did not observe any other damaged chimneys.

KY MINERVA

At BJ's Corner, an ancient two-story, three-brick-thick building in Minerva, all the groceries danced to the edge of

the shelf but nothing fell. The storekeeper said that if it had lasted much longer things would have fallen. They thought a truck had hit the store and everyone ran outside. At least one, and possibly both of the two chimneys, had bricks fall down inside it. She knew of no other damaged chimneys or cracked basements or cisterns in the area.

North of Minerva on Road 1235 we observed two chimneys that appeared to have a few bricks missing.

KY MOOREFIELD

At the one-story, concrete-block store and Post Office a number of things were thrown off the shelves.

We were told that a number of chimneys in Moorefield were cracked.

KY MORANBURG

At the two-story, wood-covered concrete-block Sunset Inn at Moranburg west of Maysville, no groceries fell off the shelves but a picture was left crooked.

In the house behind the store some trinkets fell off shelves, a previously cracked glass window was pushed out, and an upstairs door was left out of plumb and hard to close.

KY MORNING GLORY

At a two-story, wood-frame house in Morning Glory, nothing fell off shelves and no pictures were askew.

There was no known chimney damage in the area, but a kilometer up the road to the northwest we were told of a concrete-block cistern cracked around the top edge and concrete-block steps that moved away from a house.

KY MOUNT CARMEL

At the one-story, concrete-block Food Market, goods were knocked off the shelves.

One block down the street was a two-story, wood-frame house with a badly damaged chimney top and flue. It was reported to have twisted as it fell.

We were told that a new addition to an older house here had a cracked foundation.

Also, a newer home near that house may have had a cracked foundation.

KY MOUNT OLIVET

At the K-Y grocery store, a one-story, concrete-block building on the east side of Mount Olivet on U.S. Hwy. 62, several things fell off the shelves.

At the storekeeper's home a few blocks from the store nothing fell, but the house settled and damaged the gas pipeline, which had to be repaired.

KY MOUNT STERLING

At Reid Village on the western outskirts of Mount

Sterling, at the Berk Thomason International Truck Sales a one-story, wood-frame garage with a concrete-block office, a few things were shaken off in the spare parts room. The chimney was not damaged, nor was there any other damage here.

At the proprietor's home in Mount Sterling, a one-story, wood-frame, brick-veneer house, pictures were tilted on the wall but did not fall, and all the closet doors were opened.

At a steak house, 2 km from the center of Mount Sterling, where the proprietor was having lunch at the time of the earthquake, nearly everyone ran outside. The windows were working like a bellows, he said, and he was surprised that they held. The earthquake sounded like a loud roar, coming from the east. At first he thought it was a low-flying jet.

Directly across the Highway from Thomason International Truck Sales at Elvis' Pit BBQ, pictures were askew but there was no damage either to the BBQ building or the owner's house next door. Both buildings were wood-frame on concrete-block foundations.

At the Razor Heights (?) subdivision, there were reports of window glass damage.

At Morehead, 65 km east of here on U.S. Hwy. 60, a man reported the concrete blocks in the 4 stilts underneath his trailer were disarranged, but did not fall. Things did not fall inside the trailer.

Near the intersection of U.S. Hwy. 60 and Ky. Hwy. 686, southwest of Mount Sterling, we observed one older house where a few bricks appeared to have fallen from the top of the chimney.

There was quite a bit of chimney damage in the vicinity of Main and White Ave. in Mount Sterling. The houses along White Ave. were mostly one- and two-story, wood-frame buildings, very well kept up, dating from about 1930. At 3 White Ave., a couple of bricks were knocked off the chimney. The owner said that all the chimneys in the area were put up with something he called "brickment" rather than cement, and that it weathers and becomes quite soft after a number of years. Inside his house a large old German clock stopped at the time of the earthquake. At 8 White Ave. the basement floor and the foundation cracked. Damaged chimneys were observed at 411 White Ave., 416 White Ave., and another unnumbered (odd number) house. Across the street from the last house was a 30-year-old wood-frame house with brick veneer. It had a crack in the brick mortar stepping out from a window on one side and a little bit of fallen plaster on the back. Pictures were askew all over the house and a few things fell off inside. At the corner of White Avenue and Vista Court there was a house said to have had its concrete-block foundation cracked. Along Vista Court for about two and a half blocks from White Avenue we observed approximately 30% damaged chimneys. These mostly had bricks

loose or knocked off in the upper two or three courses of the chimneys. Nearby, in the vicinity of Richmond and Main, we noted quite a bit of chimney damage, also.

Downtown Mount Sterling has primarily old two-story, brick buildings, well maintained. There was very little, if any, damage. At the police station there was no damage and nothing fell, even though a police officer had discovered that he could move the station's old brick wall with his hand before the earthquake.

A plate-glass window was reported broken at 125 Main. It was in a small shopping center at the corner of Main and Queen, and nothing fell off the shelves or turned over either in the beauty shop where the window broke or in the barber shop next door.

We checked two cemeteries in Mount Sterling, one at 600 East Locust Street and the other the Saint Thomas Catholic Cemetery on North Maysville Ave., but found no rotated or overturned stones.

KY MURPHYSVILLE

On U.S. Hwy. 62 between Washington and Murphysville, we observed one damaged chimney.

On the outskirts of Murphysville, we observed another damaged chimney.

In Murphysville, at a one-story, concrete-block store and garage, motor oil and many other things came off the shelves, which were fastened directly to the concrete-block wall. A man asleep in the store part was awakened and thought the wall between the store and the garage was going to come down. The wall was not cracked. He said the motion was up and down.

Next door to the garage at a one-story, wood-frame house, fairly old, the tin roof leaked after the earthquake.

KY MYERS

On Ky. Hwy. 32, at a one-story, wood-frame grocery with concrete-block on the back, the owner showed us pictures of the store with several items knocked off the shelves.

KY NORTH MIDDLETOWN

At the Bourbon Bookkeeping and Tax Service at 108 Main Street, there were cracks in the east and west walls of the 8-year-old, all-brick, one-story building. One of the cracks ran the full 3.5-m vertical length of the exterior wall, going through the bricks. Others extended from the corners of a window. The cracks could also be seen on the inside of the double-brick wall, inside the offices. The cracks varied in width from very fine at the bottom of the walls to up to half a centimeter near the roof.

The big, two-story, wood-frame house across the street had lost quite a few bricks from the top row of its chimney.

Very little chimney damage was reported in North

Middletown.

At the IGA food store, third building east of the tax service, very few things came down, mostly on the west wall. It is a one-story building, concrete-block with brick veneer.

In a new subdivision south of town there was a report that a brick-veneer building had a crack in the wall and that there were some cracked foundations.

The man at the IGA store had cracked windows at his home near here.

KY ODDVILLE

At the two-story, brick Market on U.S. Hwy. 62 at Oddville the earthquake rattled the windows and people inside thought it was a jet. Nothing fell off the shelves.

Immediately north of Oddville we noted one chimney that had about a half dozen bricks off the top and one tilted brick still sitting on top.

KY ORANGEBURG

Just south of Orangeburg we observed a two-story, wood-frame house with the chimney down to the roof line and the bricks still lying on the roof.

In Orangeburg we talked to two different people, both living in one-story, wood-frame houses. Neither had anything knocked off or pictures left crooked. One had a medicine cabinet door that was slightly open after the earthquake. Neither was home at the time of the earthquake. Neither had heard of any chimney damage in the area, but they thought one house may have had a cracked basement.

KY OWINGSVILLE

At the office of the Bath County News-Outlook a woman told us that a number of chimneys in town were damaged, including her own. Her home at 151 High Street was a 45-year-old, two-story, wood-frame house with two chimneys, which had been repaired and strengthened a year and a half ago. Inside, the earthquake caused considerable plaster damage upstairs and very fine cracks downstairs. All of her furniture was moved and some of her pictures and other small things were moved. Nothing was broken although a few things fell off high shelves. Some of her neighbors had pictures turned facing the wall. A couple of her neighbors in newer houses had no damage.

She told us that there was extensive damage to plaster walls inside the 1887 brick Saint Julie Catholic Church on Main Street, and they were not sure if they would be able to use it any longer.

At the 1963, reinforced, concrete-block with brick veneer Post Office next door to the Catholic Church there was no damage and nothing was moved out of place inside.

At the 1845, two-story, brick United Methodist Church at the corner of Main and Lee Streets, we observed some

hairline cracks over the arch of one of the front windows. At the newspaper office we were told there was plaster damage over the windows inside the church.

The bank on Main Street had a chimney fall down, we were told at the newspaper office.

We saw a broken chimney across the street from the Bath County High School.

The newspaper office told us of an unverified story of a new home shifted off its foundation on a street that goes south on the west side of town. We drove down the street, but could see no damage to any foundations or chimneys of the all-new homes there.

(Note: Local residents made no mention to us of the ground cracks later reported in the Owingsville area. (Personal communication, J. Zollweg.))

KY PARIS

At the Paris grocery store near the corner of Main and 7th, about half a dozen things were shaken from fully loaded shelves.

The staff at the newspaper office had not heard of any damage except for one cracked patio and a few things falling off shelves.

At the approximately 75-year-old court house, there were new hairline cracks in the second-floor tile. These were mostly extensions, up to nearly a meter long, of numerous existing cracks. A judge said he had a crack in the plaster wall over his office door.

None of the homes of people we talked to at the court house had any damage, and only one person had a bottle that fell off. She said that several clocks stopped in her husband's collection of antique clocks.

KY PETERSVILLE

At the large, concrete-block grocery store and Ashland service station, filled with things that could fall over easily, nothing fell. Several customers reported that nothing fell in their homes, but one, living a short way down the road, had two pictures that fell off the wall. It sounded like an explosion followed by windows and dishes rattling. It sounded like a heavy truck coming down the road. One chimney had a couple of bricks fallen off, but the owner was not sure if it was due to the earthquake.

KY PLEASANT VALLEY

The storekeeper at Myers said that at her brick, one-story home in Pleasant Valley a few things fell.

An old chimney on a neighbor's house was damaged.

KY PLUM

At the small, one-story, wood-frame grocery and Ashland service station in Plum all the groceries came off the west wall, but none came off the east wall.

At the storekeeper's one-story, wood-frame house next door several bricks were knocked off the top row of the chimney. The chimney was well-built and well-mortared. None of her dishes fell or cabinet doors came open, but some of her neighbor's did.

She also said she thought there were several cracked concrete-block cisterns and basements in the area.

The storekeeper we talked to at the Davis grocery store in Little Rock, whose home is 5 km southeast of Little Rock near Plum, said that inside her home a few cabinet doors swung open and a few things were knocked off.

KY PLUMVILLE

At the Little Chef Diner in Plumville, a one-story, aluminum-siding building with adjacent attached concrete-block and wood-frame parts, some matches and cough drops fell off the shelf. On the concrete slab porch in front of the diner was a new three-meter-long crack.

The cook had not heard of any chimney damage in the area.

A man at the diner told us of a 125-year-old house on a rock foundation which shook severely but had no damage.

The people at the diner said there was a cave-in at a limestone quarry owned by Bravo Lime, north and east of Plumville.

KY POLKSVILLE

East of Owingsville at Polksville, at the one-story, brick-veneer concrete-block Village Mart there was a crack in the garage wall from the bottom of a window to the floor straight down through the concrete blocks. Inside nothing was moved and nothing fell off.

At the owners' home nearby a few bricks came off the chimney. We spotted the chimney on a very old, two-story, wood-frame house. It was missing about half a dozen bricks in the top two rows.

KY POPLAR FLAT

At Vanceburg we were told of someone at Poplar Flat who was feeding a calf with a quart bottle and had the bottle thrown from her hand.

KY POPLAR GROVE

At Poplar Grove, southeast of Lewisburg, at the concrete-block grocery, only a few things were knocked off shelves, all on the south wall, and some brooms fell over in the back room.

They have heard of no chimney damage in the area except for one house at Mount Carmel. We observed one chimney about two blocks from the store that seemed to have lost a number of bricks, but the people at the store did not think it happened during the earthquake.

The women in the store also pointed out that the

ancient brick house on the corner at Mount Gilead was not damaged by the earthquake, but had been cracked and missing bricks for years.

KY POPLAR PLAINS

At Poplar Plains on Ky. Hwy. 156, none of the groceries fell off the shelves in the general store.

At the old, two-story, brick house next door to the general store two of the three chimneys were badly damaged and there were significant cracks in the west wall.

We observed that approximately 40% of the chimneys in town seemed to have lost one or more bricks. All the chimneys in town are old.

At the one-story, concrete-block general store at the junction of Ky. Hwys. 111 and 156, none of the groceries fell.

On Ky. Hwy. 156 between Poplar Plains and Tilton, we observed just a few damaged chimneys in the old buildings along this road.

KY RECTORVILLE

At the one-story, concrete-block Ryan Farm Supply in Rectorville, a few cans of paint were knocked off the shelf.

At the clerk's home nearby a few things were knocked off.

At the clerk's relative's home half way between Rectorville and Plumville, a chimney was cracked.

KY REYNOLDSVILLE

In Reynoldsville we observed no chimneys that appeared to be damaged.

Just south of Reynoldsville on Ky. Hwy. 36 and Road 1325 between Reynoldsville and Owingsville, we saw only one chimney which might have been cracked during the earthquake. Most of the chimneys along this road, including the old ones, seemed to be undamaged.

KY SALT LICK

Between Owingsville and Salt Lick we observed four chimneys that appeared to have lost several bricks in the top row or two.

In Salt Lick at the fairly modern, one-story, concrete-block Ashland station at the intersection of Ky. Hwy. 211 and U.S. Hwy. 60, there were several hairline cracks in the south wall. The owner, who was pumping gas when the earthquake occurred, saw 15-cm waves in the pavement in front of the building. His customer sitting in her car thought he was rocking the car. Inside the service station a few items came off the shelves in the back room only.

He reported that the chimney on the funeral home across the street lost several bricks on the top. On the way into town we saw at least one other chimney that seemed to be

damaged.

When we came back through Salt Lick a little later we observed two more older houses, one with two chimneys, each missing about a dozen bricks, and the other, just outside of town, with a couple of bricks missing from the chimney.

KY SAND HILL

At Fearisville we were told that at Sand Hill there was a house that had all three of its chimneys damaged and another house that had a chimney cracked. We were told that Sand Hill is on the railroad track along the Ohio River just north of Trinity.

At Cottageville we were told that at Sand Hill a wall was cracked in one house.

KY SARDIS

At Sardis we talked to the people sitting in front of the grocery. They knew of three damaged chimneys in town, all on older houses, but they didn't know how well they were mortared. The chimneys had lost 3 courses of bricks or less. They reported that nothing had fallen in their homes. One had some pictures that swung during the earthquake, but they straightened back up by the time the shaking stopped.

KY SHADY NOOK

About half a kilometer southeast of Shady Nook at a one-story, wood-frame house nothing fell off the shelves and no pictures were tilted. No one was home at the time of the earthquake, but the owner thought that most of the damage in the area, if any, was probably to cast-concrete cistern tops.

At the two-story, wood-frame grocery in Shady Nook, the people were home watching TV at the time of the earthquake. It sounded like distant thunder, and they heard the windows rattling a little bit. Nothing fell from their shelves.

KY SHANNON

At the junction of U.S. Hwy. 62 and Ky. Hwy. 596 at the a one-story, concrete-block grocery store, only two items of the many in the store fell off. However, the shopkeepers reported that their neighbors had dishes and small items knocked off their shelves and broken.

They told us that just south of the church south of Shannon, at the Buddy Crawford farm, there was chimney damage. We drove by the farm, but the damage was not obvious from the highway. It was an old two-story brick residence.

KY SHARPSBURG

Most of the homes along the highway leading through town are about a century old. Approximately 50% had damaged chimneys, especially the unreinforced older ones laid up with lime mortar, according to the residents and volunteer

firemen we talked to on the street. They said that most of these were defunct chimneys, used only for ventilation. They also reported that several basements in the area were cracked and some needed patching. During the earthquake they said the sidewalks seemed to have waves as though they were made out of rubber. They had heard of some rotated tombstones in the cemetery north of town. The concrete-block, unreinforced fire station, as well as the concrete slab, had no cracks at all. Small plaster chips fell inside the reinforced concrete-block, brick-veneer Post Office, built in 1961, but there were no cracks in the building. Only a few items fell off the shelf in the one-story, concrete-block grocery store, and there was no damage to the building. Very few things were reported to have fallen in town. We observed two chimneys on adjacent houses, both damaged, one leaning badly. Next door was a trailer on very high stacks of concrete blocks that did not seem to be disturbed at all.

At the cemetery just north of town we observed a number of gravestones rotated clockwise. Many of them were also displaced perhaps a centimeter to the south. The stones that were disturbed were usually the tall three-tiered spires.

North of Sharpsburg on Ky. Hwy. 11 to Bethel, almost all the chimneys had damaged tops.

KY SHAWHAN

At the County Store and Real Estate in Shawhan, a one-story, wood-frame building with a number of things sitting right on the edge of the shelves, nothing fell off.

The real estate agent knew of no damage here. At his home the windows rattled.

KY SHERBURNE

At the Sherburne General Store and Standard Station, a two-story, wood-frame building with the long axis north to south, the front window on the south side was buckled and broken out and all of the groceries lining the east wall were thrown off the shelf. The groceries lining the west wall were not disturbed. Upstairs in the owner's home, a TV on legs was moved out from the wall.

Other people reported small things that fell off their shelves and broke.

A man who had just repaired two chimneys estimated that seven chimneys in town were broken. That is perhaps 20-25% of the older chimneys in town. He said that these chimneys were originally put up with lime and mud, and that some of them are so fragile now that he could push them over with his hand.

One block west of the Sherburne General Store was a collapsed chimney, broken off above the base. The upper part of the chimney fell during the earthquake, and the owner had pulled down the lower part after the earthquake

because it was loose and likely to fall. The chimney was on a one-story, wood-frame house. Inside the house a considerable amount of glassware was broken and one picture on a table fell. The plastered wall adjacent to the chimney was cracked near the ceiling. Other walls, which were covered by wall paper, had no visible cracks.

On Road 1325 immediately south of Sherburne, we observed a couple of chimneys that might have been damaged in the earthquake.

KY STATE VALLEY

The houses in State Valley had old chimneys which seemed to be undamaged.

KY TILTON

At the general store, a one-story, wood-frame grocery store at the intersection of Ky. Hwy. 11 and Road 1336, four boxes of Jello fell off the shelves. Numerous other jars and glasses stacked two deep on the shelves did not fall. The storekeeper knew of no chimneys in town that were damaged.

At Fleming Creek, the storekeeper's son was living in a three-story Civil War era house which was not damaged at all. It had a triple brick wall about half a meter thick.

KY TOLLESBORO

At the one-story, concrete-block CBS grocery, only a few things fell off the shelf. The shelf was attached to the wall and leaning down on the outside.

The woman at the store said that at her one-story, wood-frame house over a basement a few things fell down, some pictures were tilted and a heavy dresser in the bedroom was moved. She had not heard of any chimney or foundation damage in the area.

KY TRINITY

South of Trinity and north of Chalk ridge, at a one-story, wood-frame home on a concrete-block foundation, none of many knick-knacks fell off. Things just rattled. The owner came out onto her porch and felt the iron railing vibrating. Her relative at Sandy Point lost several bricks off the top of her chimney.

KY VANCEBURG

On Ky. Hwy. 10 near Clarksburg, 3 km west of Vanceburg, a lot of Avon bottles on a dresser vibrated but did not fall at a one-story, wood-frame house on a concrete-block foundation. The earthquake woke a man who was asleep in the house. He said he could see the walls moving in and out and hear windows and doors rattling, but nothing was broken, nothing fell, and no pictures were crooked.

Just west of Vanceburg at the Food Land, a modern brick and metal grocery store, about a case of baby food and a few

jars of pickles fell off the shelves.

At the clerk's home a large mirror over the TV set was jiggling and someone went to hold it thinking it was going to fall. After the earthquake, it was askew, but it didn't fall. She had not heard of any chimney or foundation cracking in this area.

KY WALLINGFORD

At the one-story, wood-frame Ashland service station and grocery, nothing fell off the shelves.

Just down the street from the grocery, the grocer and a number of customers, all living in trailers, reported that things fell off their shelves, pictures fell off dressers and broke, and pictures came off the walls and broke.

No one had heard of any chimney damage in the area.

The woman we talked to at the store in Mount Carmel lived in Wallingford. Nothing fell in her new home, but across the street from her home, all the shelves were cleared off in a child's room.

KY WASHINGTON

Near the south end of the town of Washington at the Richey Sales Company in a one-story, concrete-block building, none of the loose things piled high on the shelves fell off, and there was no damage to the building.

The town of Washington has several blocks of very old buildings dating back to the late 1700's. Some of them are log cabins. Only one chimney we observed was damaged in these blocks, and the people we talked to didn't think that the damage was done by the earthquake.

At Riggs Ashland service station on the edge of Washington at the junction of U.S. Hwys. 62 and 68 and Road 1238, none of the groceries fell off the shelves in the front of the store. The 3.6-m high front windows of the one-story, concrete-block station buckled and were all loosened but did not break. There were small cracks running diagonally, northeast-southwest, across the ceiling for over a meter in the restroom. There were also cracks in the interior, unplastered, concrete-block walls of the restroom.

At Riggs' home in Washington a few dishes were broken.

At the cemetery across the highway from Riggs service station, tombstones were rotated, most clockwise, and displaced to the northeast up to 4 cm. Ground slope seemed to influence direction of displacement.

At the Central Center shopping center between Maysville and Washington the buildings are reinforced concrete-block with brick veneer, mostly built about 1972. At Murphy's Department Store there were several blocks slightly moved out from the concrete-block side wall. Clerks in the store didn't know of any earthquake damage. Nothing fell off the shelves at Murphy's or Sears or Western Auto, but about two cases of liquor came off the tightly-packed-to-the-edge shelves at the liquor store. The liquor-store owner said he

lost considerably more at his downtown (Maysville) store at Bridge Street and 2nd Ave., also a new store. At the new Kroger store about $30 worth of things were lost off the shelves. Everyone rushed out of the store and one person fainted. The clerk had heard that there was a crack in the wall in a back room, but she had not seen it.

KY WEDONIA

On Ky. Hwy. 11 at Wedonia a few things fell in a one-story, wood-frame house. There was no other damage at the house.

About 1.5 km from here on the road to Helena, a man had few bricks loosened from his chimney, but none of the bricks fell.

KY WHITESULFUR

At a community called Whitesulfur (not on our maps), south of Salt Lick on Ky. Hwy. 211, at the Dinnerbell Restaurant, a two-story, wood-frame building, nothing fell off.

At the owner's older, two-story, wood-frame home things did fall and also about a dozen bricks came off the top of his well-mortared chimney.

The owner reported that a number of the older chimneys in the area had also lost bricks, and that a one-year-old stone house had a crack in it.

KY WINCHESTER

On U.S. Hwy. 60 and Ky. Hwy. 1958, southwest corner, just west of Winchester at a service station, the earthquake shook strongly. It sounded like a train or a truck, rattling the windows. There was no damage that the station operator knew of in this area, nor did anyone we talked to have anything that fell off.

U.S. Hwy. 60 and Kittison Drive in Winchester. At the PDQ Market, a one-story, wood-frame, brick-veneer building, everything was knocked off the shelves.

At the market owner's home, 3 blocks south of the PDQ Market on Kittison Drive, three fixtures were knocked to the floor.

Directly across the street from the PDQ Market in a very old brick building housing a doctor's office nothing was knocked from the shelves. The chimney appears to have lost one brick, but the nurse didn't think it happened during the earthquake.

At the nurse's home in Hilwood, the earthquake sounded like a loud rumbling noise. She thought her furnace might have exploded, except that her furnace wasn't running. Nothing was knocked off her shelves and none of her pictures were askew.

In Hampton Manor, at the home of the nurse's pastor, everything was knocked off the shelves.

Thirty kilometers east of Lexington on Interstate Hwy.

64, a man in the basement of his home did not feel the earthquake, but his father, also in the basement, felt the divan he was sitting on shake. They did not know it was an earthquake.

The Winchester Police Department is in a 1912 three-story, red-brick building with a tower on top. The building had no cracked plaster or any damage. Cracked windows in the jail were caused by a windstorm after the earthquake, although they may have been loosened by the shock.

One person reported pictures askew in his home.

Three kilometers west of Winchester, on U.S. Hwy. 60, at a lake on Cadell (?) farm, a police officer was fishing at the time of the earthquake. He saw cattle start running out of the lake and heard something like a train approaching him. He felt the shock pass beneath his boat and saw bubbles rising directly under the boat.

Winchester business district. No damage was reported in the old two- and three-story, brick buildings here.

Robert P. Clark County Fire Station No. 1, half a kilometer east of Winchester on U.S. Hwy. 60. The station is one-story, reinforced concrete-block with brick veneer. Nothing fell off the shelves and no pictures were askew. Many people thought it was a gas line explosion.

A couple living in a mobile home were frightened and ran outside, but nothing fell inside the home.

East of Winchester on U.S. Hwy. 60, where 60 is north of Interstate Hwy. 84, at the Wineteun grocery store, a one-story, concrete-block (probably not reinforced) building, only a few unstable items fell from the shelves. The proprietor thought the windows were going to break, but they held.

KY WYOMING

At the one-story, concrete-block Texaco service station and grocery across from the gas plant, nothing fell off the shelves.

Next door, at the storekeeper's one-story, wood-frame house, the cabinet doors came open and a few things fell down. A few neighbors also reported fallen things.

They had heard of no chimney damage in the area.

OH ABERDEEN

A person we talked to at Moranburg said that at her home in Aberdeen all her books were knocked off her shelves.

At the one-story, concrete-block and stucco police and fire department in Aberdeen, pictures were crooked on the walls after the earthquake. The police station had a small brick chimney that had lost some bricks.

At a police officer's apartment building pictures fell from the wall and a wood door frame pulled away from the rest of the building.

He said there were a couple of chimneys in town with

bricks off and he knew of one chimney by the water front that bowed out. The bowed chimney, he said, was old but had survived a number of floods.

We drove along Aberdeen's 2nd Street, near the river, and estimated perhaps 50% of the chimneys along a several-block-long stretch were damaged. We saw chimneys with bricks off in the top courses and one bowed chimney. We spotted one damaged chimney up the hill a little away from 2nd Street on an unnamed street.

On the west side of Aberdeen, across U.S. Hwy. 52 from the Tyler airport, in a new subdivision of ranch-type homes we observed absolutely no chimney damage. They are new and well-mortared chimneys.

ON BENTONVILLE

Just south of Bentonville at a fairly modern, two-story, wood-frame house, pictures were knocked off the walls upstairs. No dishes fell at this house, but they did at some of the neighbors. The suspended ceiling vibrated wildly during the earthquake. The owner knew of no damage in the neighborhood.

In Bentonville at Young's grocery and gas station, a fairly modern, two-story, concrete-block building, one can of chili fell off the well-stocked shelves. In the owners' home over the store, nothing fell from a divider full of glassware. Upstairs, a couple of pictures were crooked on the wall after the earthquake.

They mentioned a neighbor within a 3-km.radius who had furniture moved and another who had pictures knocked off the wall.

At Fizzleville we were told that a loose-stacked rock retaining wall partially collapsed at a relative's home in Bentonville.

ON BRADYSVILLE

The people we talked to in Ellsberry reported that their son's home just north of Bradysville had a cracked window.

Just south of Bradysville we observed one chimney with several courses of bricks off the chimney piled on the roof.

In Bradysville at a new, one-story, brick house the windows and dishes rattled, things moved around on a counter a little, but nothing fell off, and one picture was left crooked. They knew of no one who had anything to fall off, or any kind of damage.

ON CHILO

At the one-story, concrete-block grocery, a number of things fell off shelves and there was damage to the tin roof; possibly a nail came out. The gas tank in front of the building had developed a leak and water had had gotten into the gas tank.

The grocer told us of several broken windows in town

and two old chimneys that were damaged.

OH CINCINNATI

At the 1893 four-story, sandstone City Hall at 801 Plum, a sandstone finial fell from a pinnacle approximately 40 m to the granite steps below, cracking the steps. The finial was about a meter high and had four horizontal arms of about .75 m from tip to tip. It broke off where its narrow base was fitted into a matching groove on the pinnacle. It fell on the west, or Central Ave. side of the building. A similar finial on the opposite side of the building, as well as numerous others, were not damaged. The finials had all been checked a few years ago and the loose ones removed. There was one place on the steep roof where the tiles appeared to have bulged out or overlapped, but the building supervisor wasn't sure how long they had been they way. Inside the clock tower up under the roof an old, patched crack was widened and lengthened, going through the patch. People we talked to in offices in the building said they had found nothing displaced or moved in the building.

A man we talked to at City Hall said he was lying on his couch at home and it shimmied. He didn't recognize it as an earthquake, and his wife, who was moving around in the house, did not notice it at all.

Another man said that the chandelier jingled in his home.

OH DECATUR

At Cooper's grocery store, an older, two-story, wood-frame building on a concrete-block foundation, several things fell off the shelf.

The storekeeper knew of no chimney or basement damage or anyone nearby having things fall off.

At the storekeeper's home near Rattlesnake Creek on the road between Decatur and Russellville, the stove rattled and the faucet on the kitchen sink bounced up and down. Everyone ran outside. The earthquake continued until after they were outside. Nothing fell.

OH ELLSBERRY

At Ellsberry, northeast of Aberdeen on Oh. Hwy. 41, at a modern, one-story, wood-frame house, nothing fell off shelves and no pictures were askew. The residents thought one of their neighbors had something that fell off. They were not home at the time of the earthquake, and they had not heard of any window, chimney, or basement damage in Ellsberry.

OH FIZZLEVILLE

On Oh. Hwy. 765 about half-way between Neel and Slickaway, north of Aberdeen, is a place the local residents called Fizzleville. (It's not on the map.) At the very old, two-story, wood-frame general store, nothing fell off.

At a modern, two-story, wood-frame home next door, the chandelier swung and several items fell off a dresser.

ON GEORGETOWN

A police officer we talked to in Georgetown said he thought there was one chimney damaged in town.

At the Brown County Jail the sheriff, who was there at the time of the earthquake, said the building was shaking, the sign outside the door was swinging, and the cabinet doors flew open in a kitchen in back. Nothing fell in the sheriff's office. He had a report that a chimney on the north side of town was cracked.

ON HIGGINSPORT

At the two-story, concrete-block Brown's grocery store in Higginsport, two full Coke bottles sitting on the concrete floor turned over. Nothing else fell.

There was an unconfirmed report of a couple of chimneys near the water front that were damaged.

At the corner of Jackson and Gains Streets we talked to a woman in a 1956, one-story, wood-frame house who said nothing fell and there was no damage at her home or her neighbors' homes. One neighbor in a 1957 house had a collection of small lamps sitting on glass shelves. The lamps danced around on the shelves but none fell.

ON MANCHESTER

At Frame's Meat Market, an old, two-story, brick building in Manchester, there was damage to the chimney and to the bricks along the wall at the top of the roof on the west-facing wall. The owner said it is the oldest building on the street. His bricks were loose and easily knocked off. He had heard of no other similar damage along the street. We noted no other chimney or parapet damage on the street.

At the Rose Funeral Home, a two-story, brick house at Main and 8th in Manchester, all three chimneys were down. There was a large pile of bricks at the base of one of the chimneys and the others appeared to have lost quite a few bricks.

In a short ride through the residential area near the funeral home, we observed several other chimneys with half a dozen or fewer bricks missing.

ON MOSCOW

At the grocery and Ashland service station, a one-story, concrete-block building, only one person, who was sitting in a chair, felt the earthquake. Nothing fell from the store shelves and there was no damage.

ON NEVILLE

At the one-story, wood-frame Neville Carry-Out Lunch Meats and grocery store, nothing fell off the shelves. The

windows rattled a little, but the people we talked to had heard of no damage in town.

OH NEW RICHMOND

The postmaster said that he was sitting on his front porch and that it shook "like a bowl full of jello." He heard nothing rattling, and nothing fell off in his or his neighbors' homes that he knew of.

At his mother's home about 2 km from New Richmond on Oh. Hwy. 132, a lot of china rattled considerably. His mother thought the crystals were going to come off her glass chandelier, but they did not fall.

At the New Richmond police station, an older, two-story, brick building, nothing fell.

The police officer said she was driving in her cruiser at the time of the earthquake and did not feel the shock.

We were told that people who were outside did not feel the earthquake, but those who were inside did.

A man at a two-story, wood-frame house across the street from the police station said he felt it and immediately recognized it for an earthquake from his experience in California. He heard cups rattling in his kitchen. He went outside and saw the clothesline whipping around.

Another man, who was standing in a crowd on a WPA wall along the river watching boat races, said he was the only one in the crowd to notice the earthquake.

OH POINT PLEASANT

At the two-story, wood-frame Point Pleasant grocery store, several bottles of drugs that were sitting at the edge of a shelf fell off.

The storekeeper was not home at the time of the earthquake, but nothing had fallen in his home.

OH RIPLEY

At Taylor's Village Mart, a very old two-story, brick building, there was some chimney damage, not visable from the outside. The chimney was unused. There was also some damage to the parapet. Inside, a couple of jars of jelly and a couple of boxes of cereal fell over. The shelves were tilted a little back toward the wall.

Across the street in the newer, concrete-block supermarket quite a few things were thrown off the shelves.

Across the street and one block from the river was the two-story, brick library, where none of the books fell off the shelves, but a few fell over in the shelves.

At the librarian's older wood-frame home, bricks fell from the upper part of her chimney onto her tin roof. Pictures were crooked on the walls. Her walls were lath with plaster attached to it and plaster fell inside the walls.

Another librarian had a few trinkets that moved around

on a table but nothing fell in her modern brick home.

Riding through Ripley we estimated 5% of the chimneys seemed to have just a few fallen bricks.

OH UTOPIA

At the one-story, wood-frame grocery store on a concrete-block foundation, people inside felt the earthquake, but nothing fell off. One neighbor had a beer mug that fell off a shelf and another had a few things that walked along a shelf but did not fall.

OH WEST UNION

At the fairly modern, three-story, brick Court House in West Union, a sheriff's deputy said nothing fell off shelves either there or in any of their homes. The dispatcher said the jail bars were rattling during the earthquake. There was a hairline crack running vertically the whole height of the building a half-brick from the northwest corner of the building. They hadn't noticed it before, but they were not convinced it was from the earthquake. It could have been a settling crack.

They knew of no chimney damage in the area except at Manchester.

AFTERSHOCK OF JULY 31, 1980

KY BARTERVILLE

The proprietor of the store at Barterville (NNW of Carlisle) was up at 5:30 (EDT) the morning of July 31, 1980, and did not feel the aftershock.

KY CARLISLE

A woman whose home was a few kilometers east of Carlisle said that she felt another shock the morning of July 31, at about 5:30.

KY MOOREFIELD

A man at the store in Moorefield said he felt the earthquake at 5:30 the morning of July 31. The house just shook.

KY PLUM

At the Davis grocery store in Little Rock the storekeeper, whose home was 5 km southeast of Little Rock near Plum, was awakened the morning of July 31 at 5:28 by another earthquake. She was sleeping soundly at the time.

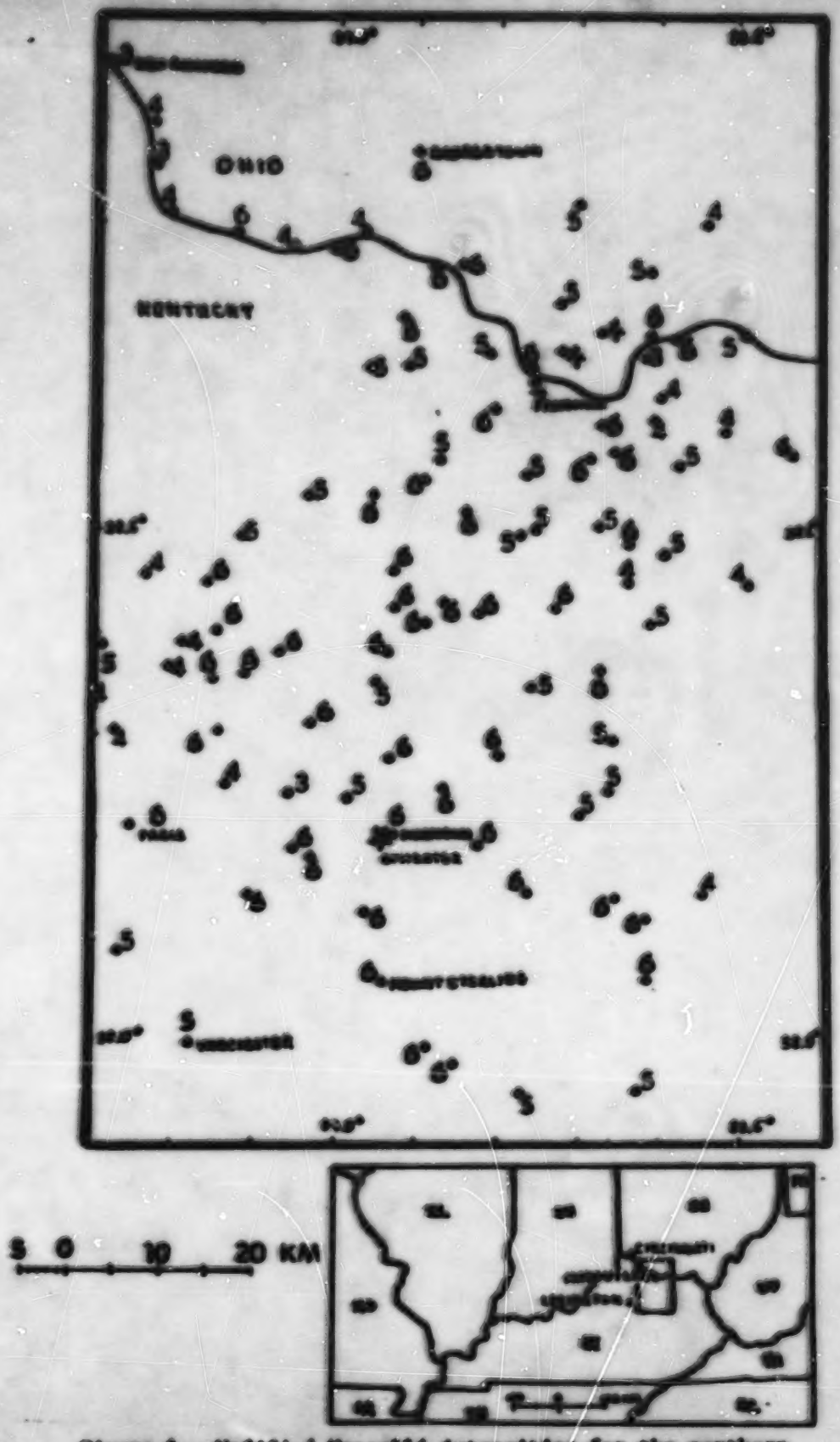

Figure 1.--Modified Mercalli intensities for the northern Kentucky earthquake of July 27, 1980.